Crew Training and Support Systems

We bring together knowledge of human learning and an understanding of the skills necessary to perform specific tasks within the operational context. This expertise allows us to develop and evaluate training systems.

Objective

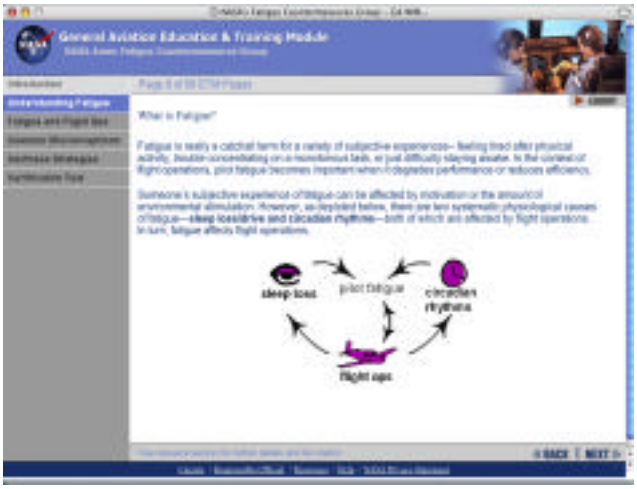
To develop and evaluate various training approaches and products. Our work ranges from issues of pilots' use of cockpit automation, to ground crews' use of deicing techniques, to dispatchers' use of weather data, to ATC collaborative decision making. In these and many other domains, our products range from guidance materials for management and decision makers, to training outlines and resources, to web based training modules.

Training in Alertness Management

Fatigue has been a contributing or causal factor in several aviation accidents. Our Fatigue Countermeasures Group has developed a web based training module designed to convey fatigue and alertness information to a general aviation audience. Assessment of the effectiveness of this training has shown that it promotes increase awareness in pilots who have accessed the web based module. In particular pilots demonstrate improved knowledge of sleep cycles and circadian rythms and the importance of napping as a countermeasure.

Decision Research System

We have developed and implemented training modules in team decision-making, situation awareness, attention management, and communication. Using a web based tool we have studied how individual differences in cognitive and affective capacities, training, and experience interact to influence how pilots make decisions. This tool is capable of reproducing simulated decision environments and conducting research using typical laboratory procedures. The system allows researchers to reach participants at remote locations and gather many of the measures typically obtained in the laboratory (e.g., time spent accessing different sources of information, order of access, decisions made, self reports of confidence, and subjective probability estimates). Using these data and additional information



gathered from the pilots, the effects of individual differences in temperament, training, and experience on decision strategies, processes, and outcomes are being investigated.

Relevance to Exploration Systems

Training in alertness and decision making are both essential for managing human error in space operations.

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